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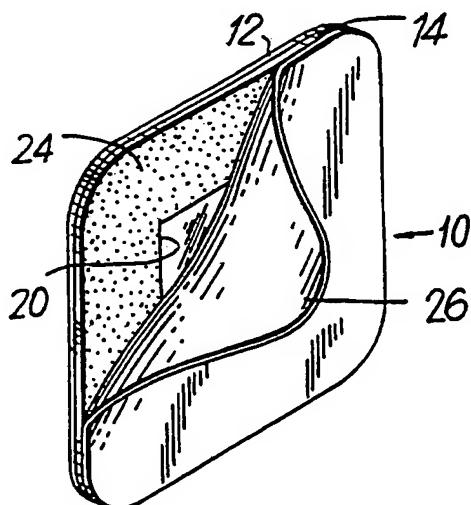
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(54) Title: A TELEPHONE CROSS-CONTAMINATION BARRIER ASSEMBLY

(57) Abstract

A telephone cross-contamination barrier assembly is provided. The barrier assembly includes a barrier layer for preventing the transmission of bacteria and virus therethrough while permitting sound to pass therethrough. An adhesive is provided on the barrier for affixing the barrier to a telephone. A stabilizing substrate is disposed between the adhesive and the barrier.



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A TELEPHONE CROSS-CONTAMINATION BARRIER ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates to a bacterial and virus cross-contamination barrier assembly, for preventing transmission of bacteria and virus in a telephone receiver.

A well recognized problem in using telephones is that the openings in a telephone mouthpiece can be a breeding area for contagious bacteria or viruses. This problem is particularly acute in a hospital bedroom and other health care facilities in which contaminants are transmitted into the telephone receiver so that the next user of the telephone receiver is subjected to the previous patient's health.

There are several prior art methods for preventing cross-contamination from a telephone receiver in such environment. For example, the telephone handset can be cleaned on a daily basis, utilizing disinfectants. However, such disinfectants and cleaning only sanitizes the outer surface of the telephone handset. Contaminants, which have penetrated the telephone through the holes in the mouthpiece of a telephone handset, are not cleaned when the surface of the telephone receiver is wiped clean.

A second method for preventing cross-contamination between successive patients at health care facilities is to replace the telephone handset or entire telephone when each successive patient has left the hospital. This method suffers from the disadvantage that it is quite costly, requiring the replacement of expensive telephone equipment for each patient. If the hospital defers the cost by selling the telephone to the patient, this only increases the cost of hospital care for each patient and the space required to inventory telephones.

Accordingly, a barrier assembly for preventing germs and viruses from infecting successive telephone users in a health care environment is desired.

SUMMARY OF THE INVENTION

Generally speaking, in accordance with the instant invention, a barrier assembly for preventing cross-contamination from bacteria and virus through the use of telephones includes a sound permeable and bacteria and virus impermeable layer. The

layer is laminated to a substrate. The substrate is dimensioned to extend about the perimeter of a telephone handset. A layer of adhesive is affixed to the substrate disposed between the substrate and the handset mouthpiece to permit the substrate to be adhesively and releasably secured to the handset to prevent bacteria from entering into the openings in the mouthpiece covered by the layer.

Accordingly, it is an object of the instant invention to provide an improved barrier assembly for preventing cross-contamination from bacteria and virus by a telephone.

A further object of the invention is to provide an unobtrusive barrier assembly which prevents transmission of bacteria and virus to the telephone handset.

Another object of the instant invention is to provide a barrier assembly for preventing the transmission of bacteria and virus from the use of the telephone which is cost efficient and simple to use.

Still other objects and advantages of the invention will in part be obvious and in part be apparent from the specification.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified by the constructions hereinafter set forth, and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the invention, reference is had to the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a telephone cross-contamination barrier assembly constructed in accordance with the invention with a bottom protective layer being peeled away prior to use;

FIG. 2 is a perspective view of the barrier assembly for preventing transmission of bacteria and virus utilized on a telephone handset in accordance with the invention; and

FIG. 3 is a sectional view taken along line 3 - 3 of FIG. 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference is made to FIGS 1-3 wherein a telephone cross contamination barrier assembly for preventing transmission of bacteria and virus, generally indicated at 10 (hereinafter "barrier assembly") and constructed in accordance with the instant invention is depicted. Barrier assembly 10 includes a layer 12 which is impervious to bacteria and virus but allows sound to pass therethrough substantially unimpeded or unaltered. Layer 12 is mounted to a substrate 14.

Substrate 14 is dimensioned to cover a surface perimeter of a mouthpiece 16 of a telephone handset 18. Substrate 14 is formed with a window 20 therein exposing mouthpiece holes 22 of mouthpiece 16, thus exposing mouthpiece 16 to layer 12.

An adhesive layer 24 is affixed to the substrate 14 and provides an adhesive between substrate 14 and mouthpiece 16 of handset 18 to maintain barrier assembly 10 in position during use. Adhesive layer 24 provides a grip sufficient to maintain barrier assembly 10 in position during use without providing a bond so strong to prevent removal of barrier assembly 10 after use. Substrate 14 provides stability to layer 12 and, by providing a rigid perimeter backing for layer 12, facilitates removal of barrier assembly 10 after use.

In an exemplary embodiment, layer 12 is formed of a plastic such as a polyester film, urethane film or the like providing a high vapor barrier. Substrate 14 is made of vinyl in an exemplary embodiment but may be made of plastic, paper, cardboard or the like or any flexible or rigid material which will lend itself to parallel the contour of a telephone mouthpiece when adhesively positioned thereon. Plastic layer 12 may be laminated or sealed to substrate 14 or may be affixed thereto by an adhesive applied to either plastic layer 12 or vinyl substrate 14. Substrate 14 provides stability to layer 12. However, substrate 14 is not required to perform the invention. An adhesive may be applied directly to one surface of plastic layer 12 which then may be applied directly to mouthpiece 16. However, this increases the difficulty in removing barrier assembly from mouthpiece 16.

In an exemplary embodiment, adhesive 24 is double-sided tape. During storage or packaging prior to use, a pressure-

sensitive, non-stick protective paper layer 26 is provided to prevent adhesive 24 from inadvertently sticking to surfaces for which it was not intended. Paper layer 26 is merely peeled away from adhesive layer 24, exposing the adhesive of adhesive layer 24 so that barrier assembly 10 may be mounted on telephone handset 18.

In an exemplary embodiment, barrier assembly 10 is formed by either cutting or stamping out portions of a thin polyester film. A border is formed from vinyl or polyester which is formed by stamping out a substantially O-shaped piece having an outer circumference substantially equal to the outer circumference of the stamped polyester film in both size and shape. The polyester film layer 12 may either be glued to the substrate 14 or laminated thereto. A double-sided tape 24 is then cut in the shape of the substrate 14 and applied beneath the substrate 14. Since pressure-sensitive double-sided adhesive tape 24 is manufactured with a protective peelable layer on either side thereof, one layer of the protective peelable layer is removed and affixed to the border while the other protective peelable layer remains intact. Double sided adhesive tape 24 may be substituted by any adhesive which will allow quick removal from handset 18 and will not stick to paper layer 26.

In another embodiment of the invention, to produce the barrier assembly at high speeds, the product may be formed utilizing two rolls or webs. The first web is formed with paper layer 26, adhesive 24 affixed to paper layer 26, substrate 14 affixed to adhesive 24. A more permanent bonding adhesive is applied to substrate 14 on the side not having adhesive 24. A second removable paper layers is applied to the more permanent adhesive. This roll is processed through a rotary die apparatus which kiss cuts a window through the upper layer of non-stick paper and the substrate 24 as well as cuts the perimeter of the device through the upper removable protective paper layer. The upper protective layer is then peeled away. A second roll of the polyester film layer 12 is then affixed to the first role utilizing the stronger bonding adhesive. The combined rolls are then processed through a second die apparatus which cuts the perimeter of the device forming each individual barrier assembly 10.

In another embodiment of the invention, barrier assembly 10 may be formed of a single plastic member in which the border is integrally formed with the barrier member as a thicker portion of that plastic member extending about the circumference of barrier assembly 10. As a result, a window is provided of thinner polyester film, and a border is provided of thicker polyester film. For example, a barrier assembly 10 may be formed of an integrally manufactured polyester film having a thickness about the outer edge of 2 mils and a window of 1 mil thick polyester found at the center of barrier assembly 10. An adhesive would be applied to the polyester border formed by the 2 mil thick film. Where a distinct substrate 12 is utilized substrate 12 may be formed of 1 mil of white polyester or 3.5 mil of white vinyl.

It is noted that barrier assembly 10 is described in conjunction with a telephone mouthpiece for simplification of description. Barrier assembly 10 is also utilized in conjunction with an earpiece of handset 18 to prevent transmission of bacteria and virus by successive ears.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

C L A I M S

WHAT IS CLAIMED IS:

1. A telephone cross-contamination barrier assembly comprising layer means for preventing the transmission of bacteria and virus therethrough and permitting sound to pass therethrough; and adhesive means for affixing said barrier means to said telephone.
2. The telephone cross-contamination barrier assembly of claim 1, wherein said layer means is a thin polyester film.
3. The telephone cross-contamination barrier assembly of claim 1, further comprising stabilizing means for providing structural stability to said barrier means, said stabilizing means being disposed between said layer means and said adhesive means, said layer means being affixed to said stabilizing means and said adhesive means being affixed to said stabilizing means.
4. The telephone cross-contamination barrier assembly of claim 3, wherein said stabilizing means is a substrate having a window formed therein, said substrate forming to the contour of said telephone.
5. The telephone cross-contamination barrier assembly of claim 4, wherein said layer means is laminated to said stabilizing means.
6. The telephone cross-contamination barrier assembly of claim 4, wherein said stabilizing means is formed of polyester.
7. The telephone cross-contamination barrier assembly of claim 3, wherein said adhesive means includes a double-sided adhesive tape.
8. The telephone cross-contamination barrier assembly of claim 1, further comprising a non-stick paper layer affixed to said adhesive means, said non-stick paper layer being selectively peelable from said adhesive means.
9. The telephone cross-contamination barrier assembly of claim 7, further comprising a non-stick paper layer affixed to said adhesive means, said non-stick paper layer being selectively peelable from said adhesive means.
10. A telephone cross-contamination barrier assembly comprising layer means for preventing the transmission of bacteria and virus therethrough and permitting sound to pass therethrough;

adhesive means for affixing said barrier means to said telephone; and stabilizing means for providing structural stability to said layer means, said stabilizing means being disposed between said layer means and said adhesive means, said layer means being affixed to said stabilizing means and said adhesive means being affixed to said stabilizing means, said stabilizing means being a substrate having a window formed therein, said border forming to the contour of said telephone.

11. The telephone cross-contamination barrier assembly of claim 10, further comprising a non-stick paper layer affixed to said adhesive means, said non-stick paper layer being selectively peelable from said adhesive means.

12. The telephone cross-contamination barrier assembly of claim 10, wherein said adhesive means includes a double-sided tape.

13. The telephone cross-contamination barrier assembly of claim 1, wherein said layer means is a thin polyester film.

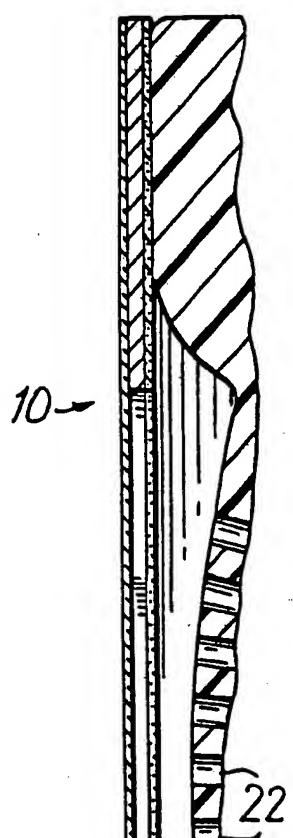
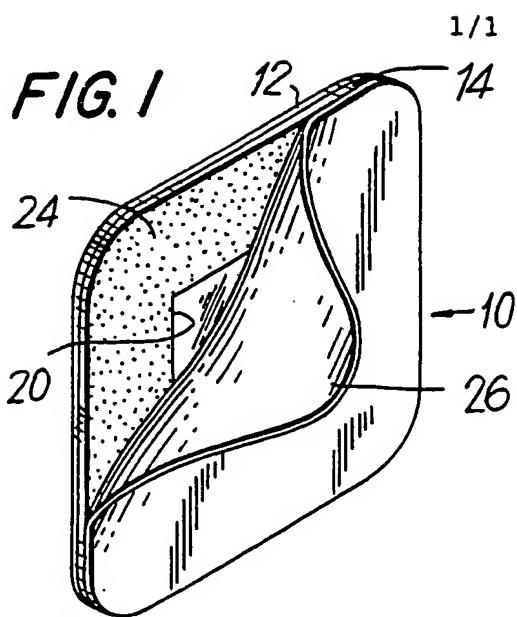


FIG. 2

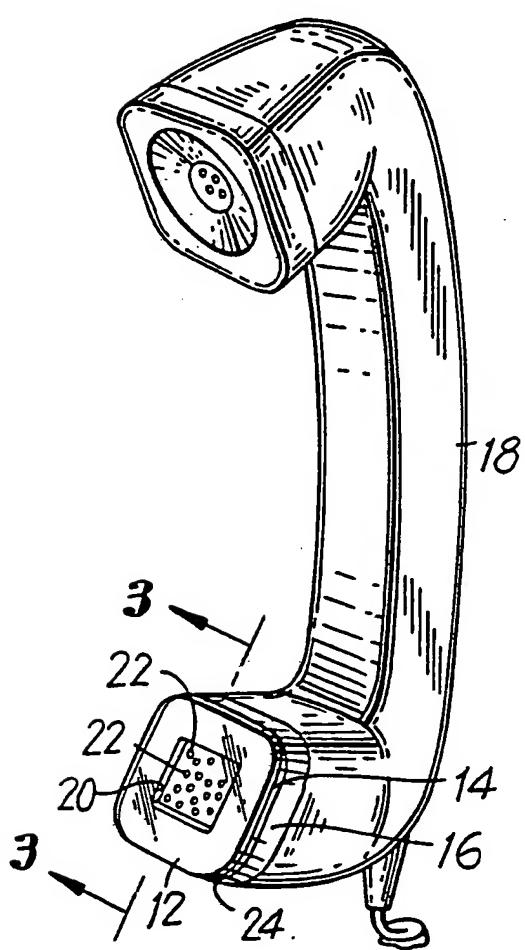
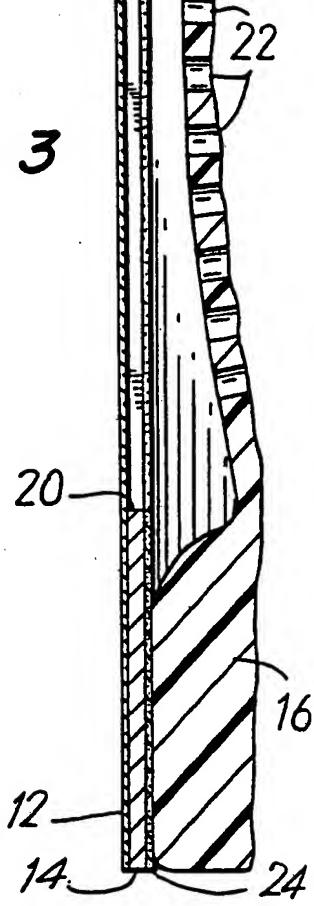


FIG. 3



INTERNATIONAL SEARCH REPORT

International Application No PCT/US 92/07805

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶ According to International Patent Classification (IPC) or to both National Classification and IPC IPC5: H 04 M 1/17, H 04 R 1/12		
II. FIELDS SEARCHED Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC5	H 04 M, H 04 R	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	FR, A1, 2634337 (YUGEN KAISHA KATO KENKYUSHO) 19 January 1990, see page 2, line 12 - line 17; figures 6-8; claims 1-6 --	1-13
A	US, A, 4751731 (DESMOND O'CONNOR) 14 June 1988, see column 3, line 65 - column 4, line 25; figure 3; claim 3 --	1-13
A	WO, A1, 8906479 (MCGINN ET AL) 13 July 1989, see abstract; figures 5-6 --	1-13
<p>* Special categories of cited documents:¹⁰</p> <ul style="list-style-type: none"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search 19th November 1992	Date of Mailing of this International Search Report 22 DEC 1992	
International Searching Authority EUROPEAN PATENT OFFICE	Signature of Authorized Officer MICHAEL FELHENDLER	

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		Relevant to Claim No
Category	Citation of Document, with indication, where appropriate, of the relevant passages	
A	EP, A1, 0330805 (CAVINI, LUCIANO) 6 September 1989, see abstract; figures 1-3 --- -----	1-13

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.PCT/US 92/07805

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on 30/10/92.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A1- 2634337	19/01/90	NONE	
US-A- 4751731	14/06/88	NONE	
WO-A1- 8906479	13/07/89	AU-D- 2916889	01/08/89
EP-A1- 0330805	06/09/89	NONE	

For more details about this annex; see Official Journal of the European Patent Office, No. 18/82

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